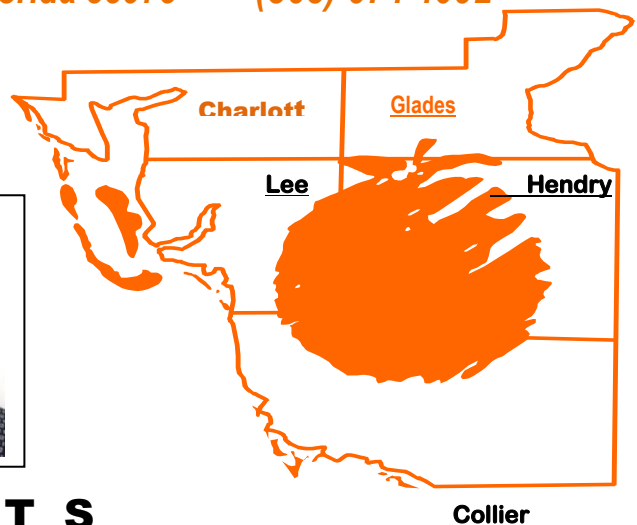


Hendry County Extension, P.O. Box 68, LaBelle, Florida 33975 (863) 674 4092

Flatwoods Citrus



Vol. 10, No. 12 December 2007

Dr. Mongi Zekri
Multi-County Citrus Agent, SW Florida



U P C O M I N G E V E N T S

WORKSHOP: Citrus Spot Burners Program

Date & Time: December 18, 2007, 9:00 AM, Location: LaBelle Fire Station in town

International Symposium hosted by UF-IFAS Lake Alfred CREC:

“Application of Precision Agriculture for Fruits and Vegetables”

January 6 – 9, 2008, Orlando, Florida

Contact: Dr. Reza Ehsani Phone: (863) 956-1151, E-mail: ehsani@ufl.edu

THE INDIAN RIVER CITRUS SEMINAR

January 23-24, 2008

St. Lucie County Fairgrounds, Ft. Pierce, FL

For information and registration, visit

<http://floridagrower.net/flgevents/>



If you want to print a color copy of the **Flatwoods Citrus** Newsletter, get to the **Florida Citrus Resources Site** at <http://flcitrus.ifas.ufl.edu/>
You can also find all you need and all links to the University of Florida Citrus Extension and the Florida Citrus Industry

REBOUNDED CITRUS INDUSTRY GOOD NEWS FOR ENTIRE STATE

By Tampa Bay Online

Published: November 2007

Florida's citrus industry was just about given up for dead in recent years. Sure, the annual crop brought in \$1.4 billion to growers last year. But plagued by hurricanes, freezes, labor shortages, imports, deadly diseases and sky-high land prices that caused landowners to turn groves into subdivisions, the long-term outlook for Florida's most identifiable crop appeared bleak.

Yet despite the odds and expectations, the industry is showing remarkable resilience. And that's good news for those who appreciate the value of Florida's agricultural industry, which provides jobs, furnishes fresh food and preserves rural landscapes.

Growers saw a decline in orange production from 230 million boxes six years ago to 129 million last year, which has meant higher prices for consumers but good times for those who actually had fruit to pick.

This year, the U.S. Department of Agriculture predicts Florida's production will increase to 168 million boxes - a larger crop but not so big growers won't earn a healthy profit.

More good news for the industry: The U.S. International Trade Commission recently released a decision favorable to growers' associations. The commission affirmed a March 2006 ruling that Brazil's top processors of concentrated orange juice sold their juice on the U.S. market at less than fair value, which means U.S. Customs will continue to collect a duty on the imports, thus helping protect Florida's market.

It's great to see the industry on the upswing.

While citrus groves once covered nearly 1 million acres in the state, almost 400,000 acres have been lost to development and other agricultural uses. While Polk County remains the heart of citrus country, urban development has pushed the industry south. The one bright spot in the housing slump may be that growers aren't as disposed to sell as they were when the price per acre approached \$50,000.

But even with the good news the industry can't afford to relax. Officials with Florida Citrus Mutual tell us growers' costs are rising. It costs a typical grower \$250 to \$300 more an acre to deal with citrus canker, and that doesn't include pesticides, they say.

And some \$7.5 million is being spent to support 100-plus research projects as growers wage war on citrus greening, another scourge.

Fortunately, the canker outbreak that has bedeviled the state for most of the last decade, particularly in the aftermath of the hurricanes, has been largely contained to the Vero Beach area. The new suppression, rather than eradication, program appears to be working.

So despite formidable obstacles, there is reason for optimism the citrus industry will survive for the foreseeable future, treating Floridians to abundant green space and a taste of sunshine.

Special Thanks to all the sponsors of the Flatwoods Citrus newsletter for their generous contribution and support. If you would like to be among them, please contact me at 863 674 4092.

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November 2007

OJ Farm Price Forecast Is Good

By Kevin Bouffard at kevin.bouffard@theledger.com or 863-802-7591

Florida orange growers can expect another good year for farm prices in the 2007-08 Florida citrus season, although down slightly from last season's record prices.

But grapefruit growers could leave some 2 million boxes on the tree this season because prices offered by the state's juice processors will be less than the cost of harvesting, according to Mark Brown, the chief economist for the Florida Department of Citrus.

For consumers, who saw a 21.6 percent increase in retail OJ prices during the past season, orange juice price hikes should moderate while grapefruit juice should remain flat or dip slightly.

That's the scenario Brown laid out for the Florida Citrus Commission at its Wednesday meeting. The 2007-08 season began last month and runs through June.

The 2004 and 2005 hurricanes continue to affect citrus industry economics in 2007-08 and will likely do so into the next decade. In the five seasons before the hurricanes, Florida growers produced an average 226 million boxes of oranges and 45 million boxes of grapefruit.

The U.S. Department of Agriculture has projected the state's orange growers will produce 168 million boxes this season, up 39 million boxes (30 percent) from 2006-07. It projects grapefruit production at 25 million boxes, down 2.2 million boxes (8 percent) from last season.

About 95 percent of the state's orange crop goes to juice, and historically about 60 percent of grapefruit becomes juice.

The farm prices for Florida oranges should remain high because the past three seasons of low production have left the state's juice processors with their lowest inventories since the 1980s, when three major citrus freezes hit the state. Processors started this season with just 576.3 million gallons, Brown said.

That should keep the demand for the new orange crop high.

Brown projected Florida growers would receive \$5.86 per box for early and mid-season juice oranges, which are harvested until March. He projected the farm price for the Valencia orange crop, picked from March to June, at 8.04 per box on tree.

If that proves accurate, growers would receive nearly 19 percent for early-mids and almost 34 percent less for Valencias. The USDA estimated juice orange growers last season received \$7.21 per box for early-mids and \$10.75 for Valencias, both historic highs not adjusting for inflation.

"On tree" represents the money growers receive after the juice processors deduct harvesting, transportation and other costs of getting the fruit from grove to plant. The growers' profits come after they deduct caretaking, labor and other costs from the on-tree price. Most growers reported having their most profitable season in 2006-07.

The record orange prices led processors to increase the price for all OJ products last season.

The average retail OJ price jumped 21.6 percent to \$5.70 per gallon in 2006-07, up from \$4.69 the previous season. Although U.S. volume sales declined 12.8 percent to 649 million gallons last season, processors received \$3.7 billion for OJ products, up 6 percent.

Brown projected retail OJ prices could rise to \$5.86 up to \$6.06 per gallon in the coming year. At the lower level, volume could increase slightly to 653 million gallons, but it would drop to 640 million at the higher price.

Per capita (the number of gallons consumed by the average U.S. consumer), OJ consumption could fall to 4.2 gallons in the coming year, down slightly from 4.3 last season but down a full gallon from the 2000-01 season.

"I'm optimistic we'll see better sales than what we see here," said Citrus Commissioner Bob Behr, an economist and vice president at Florida's Natural Growers in Lake Wales. He was the only commissioner to comment on Brown's report.

Grapefruit

Brown painted a much darker scenario for grapefruit juice. Farm prices for grapefruit shot up after the 2004 and 2005 hurricanes blew as much as 75 percent of each season's crop off the trees. As a result, the retail price of grapefruit juice, which had been declining since the 1990s, soared because processors feared they would exhaust their inventories.

The average retail price for grapefruit juice reached \$6.22 in 2006-07, up 30.7 percent from three years earlier, according to Brown. U.S. volume sales crashed to 21.7 million gallons last season from 34.2 million in those three years.

The sales collapse meant Florida processors actually began building grapefruit juice inventories despite the crop declines. Inventories went to 56.9 million gallons at the start of this season - a 40-week supply at current sales rates - from 41 million gallons a year earlier.

Those inventories mean grapefruit growers can expect to lose money on this season's crop after processors deduct their costs. Brown projected they would lose as much as 71 cents for white grapefruit and \$1.52 for red grapefruit.

Fresh grapefruit would still be profitable, Brown said. He projected growers would get \$10.32 per box on tree for fresh white grapefruit and \$10.51 for fresh red varieties. But not all grapefruit can be sold as fresh. Packinghouse workers cull fruit with scars and blemishes from the packing line, and the "elimination" fruit gets sent to the juice plants. That's where grapefruit growers would lose money.

But if Brown's projected farm prices prove accurate, many growers will not sell grapefruit that normally goes directly to a processing plant from the grove, he said. As a result, as many as 2 million boxes (8 percent) of this season's crop will be abandoned, or left unharvested.

If that happens, Brown added, there could be some upward pressure on the farm price for juice grapefruit, which means some growers could break even on that crop for the season. He projected retail prices for the season at \$6.16 to \$6.36 per gallon.

For other fresh citrus growers, Brown projected \$14.80 per box on tree for late-season Honey tangerines, \$13.80 per box for early tangerines, \$9.65 for tangelos and \$7.90 for Navel oranges. He projected early-mid oranges sold fresh would get \$3.90 per box on tree and Valencias \$4.85.

If that proves accurate, Florida's entire citrus crop this season will be worth \$1.32 billion, down slightly from \$1.36 billion last season.



<http://www.agclimate.org/Development/apps/agClimate/controller/perl/agClimate.pl>

FALL/WINTER CLIMATE OUTLOOK

Drought likely to continue in Georgia and Alabama, may worsen in Florida.

With much colder than normal ocean waters now in place in the tropical Pacific Ocean, it is nearly certain that La Niña will persist and possibly strengthen during the remainder of the fall and winter. La Niña conditions usually bring warmer weather to the entire region, with temperatures generally averaging 2 to 4 degrees F higher than normal from November through March.

La Niña also brings drier weather to much of the three states, but the pattern does change as the season transitions from fall into the heart of the winter. In November, the shift in average rainfall due to La Niña is 10% to 20% less than normal over the entire area. As the cold season progresses into the heart of the winter, the dry pattern actually pushes southward and intensifies over the peninsula of Florida and the immediate coasts of Alabama and Georgia, where average La Niña rainfall is 30% to 60% less than normal. Central Alabama, central Georgia, and northern Georgia tend to return to near normal rainfall during this time, while northwest Alabama actually tends to be wetter than normal.

The reason for the rainfall patterns seen in January can be attributed to the predominant jet stream configuration that sets up during a La Niña winter. While the position of the jet stream will fluctuate with the passing of individual low pressure systems, fronts, and air masses, the preferred or average setup of the jet stream is that of high pressure or “ridging” over the Pacific near the U.S. west coast and low pressure or “troughing” over the mid-section of the country. This configuration tends to steer winter storms up the Mississippi Valley and Midwest. Unfortunately, this storm track often leaves the Southeast dry and the cold fronts with a little less punch.

Will a strong La Niña make a difference in the forecast?

Forecasts are still uncertain on whether this La Niña will grow into a strong event, or remain at the weak/moderate level. Analyses have shown that strong La Niña’s tend to bring even more intense dryness to the affected areas, and that the dry conditions actually extend farther north into central and northern Georgia and Alabama during the winter.

So what are the implications for the Southeast?

The warmer temperatures will impact winter crops and fruit production, resulting in less chill accumulation over the course of the winter season. Warmer temperatures will also mean greater evaporation rates. Due to the jet stream configuration described above, severe or damaging freezes are less likely during La Niña than in neutral years. However, the risk of early or late season freezes (like in April of 2007) does not seem to be affected by the Pacific Ocean.

The shift towards drier than normal conditions becomes much more pronounced in Florida and coastal Georgia

and Alabama as fall progresses into winter, resulting in much higher confidence in a forecast of dry conditions in these areas. La Niña does not impact central and northern Georgia and Alabama nearly as much, so there is much more uncertainty in the precipitation forecast for these areas and near normal is more likely, unless this La Niña grows into a strong event. Even with near normal rainfall, drought conditions are likely to persist in northern Georgia and Alabama, but some lessening of the severity is possible with the winter rainfall. Keep in mind that winter rainfall is vital to the recharge of surface and groundwater in Georgia and Alabama, where summer evapotranspiration rates are greater than normal rainfall, usually resulting in falling water levels. In Florida and southeast Georgia where drought concerns were eased with recent rainfall, there is a strong possibility for drought to reintensify this winter and spring. Wildfires will also be a concern, where studies show that La Niña normally leads to an active wildfire season in Florida and South Georgia.

La Niña is here!

A La Niña watch was issued last month by the Southeast Climate Consortium and the state climatologists of Alabama, Florida and Georgia. A watch meant that conditions were likely for the development of a full-fledged La Niña event. La Niña is commonly thought of as the opposite of El Niño. Under La Niña conditions, sea surface temperatures along the equator in the eastern and central Pacific Ocean are a few degrees colder than normal for a minimum of five months. La Niña typically returns every 2 to 7 years.

Since the watch was issued, the colder than normal sea surface temperatures have

intensified and spread throughout the eastern and central Pacific Ocean near the equator. The colder than normal water has now taken the classic La Niña pattern and has reached at least moderate strength by most measures. Stronger than normal easterly trade winds over the area, the mechanism responsible for driving the development of La Niña, were strong and widespread in the month of September. This is a good indication that the La Niña will persist and possibly strengthen further throughout the fall and into winter. In their latest discussion, NOAA is predicting a weak-to-moderate La Niña. In light of recent developments, we think there is greater chance that this La Niña reach moderate or even strong levels.

Current Conditions

Rainfall comes to Southeast Georgia and Northeast Florida, driest areas remain dry. The month of September brought plentiful rain to Southeast Georgia and Northeast Florida from a combination of tropical moisture, stalled frontal systems and the east coast sea breeze. These areas are now drought free according to the U.S. Drought Monitor. Unfortunately, the hardest hit areas of northern Georgia and Alabama saw a continuation of drier than normal conditions resulting in the expansion of exceptional drought. Exceptional drought corresponds to drought conditions that return on average every 50 or 100 years. By some measures the drought northern Georgia and Alabama is the worst on record. The Southeast has thus far missed out on any relief from hurricanes or tropical storms which are a vital component of the late summer and fall climate.

FLOWER BUD INDUCTION

Flower Bud Induction Overview and Advisory

<http://www.lal.ufl.edu/extension/flowerbud/index.htm>

The following information has been developed as part of the Decision Information System for Citrus

[L. Gene Albrigo](#), Horticulturist, Citrus Research & Education Center, Lake Alfred

CURRENT FLOWER BUD INDUCTION OVERVIEW and ADVISORY for 2007 - 2008

Overview of flower bud induction in Florida



Citrus flower bud induction starts in the fall and usually is completed by early January. Low temperatures first stop growth and then promote induction of flower buds as more hours of low temperatures accumulate (below 68 degrees F). A period of high temperatures in winter can then initiate bud differentiation which after sufficient days of warm springtime temperatures leads to bloom. The meteorologists predict that this winter in Florida will be

a **La Nina** year, higher than average temperatures and lower than average rainfall. Even under these conditions, enough hours of low temperatures below 68 degrees F. usually accumulate to induce a reasonable level of flower buds. Conditions that can interfere with good flower bud induction include: 1) several warm periods interrupt the induction process or 2) the previous crop was exceptionally high or 3) leaf loss from hurricanes or other causes (canker) was excessive and tree recovery was not complete. Two or three lead to low carbohydrate levels in developing buds which reduced their ability to become flower buds.

Under normal Florida weather conditions but with a moderate to heavy previous crop, sufficient flower bud induction should be achieved when total accumulated hours of low temperatures exceed 800 hours below 68 degrees F. If the crop load is light, sufficient flower bud induction may occur after 700 hours of accumulated low temperatures. A warm period of 7 to 12 days, with maximum temperatures > 80 to 85 degrees F., can trigger growth (bud swelling) if a minimum total hours of low temperatures have accumulated

(400-500 hours below 68 degrees F). Later in the winter when the accumulated cool temperature induction hours are high, fewer days and lower daytime highs (75 degrees F.) are required in a warm period to stimulate growth of buds. Weather information relative to Florida citrus flower bud development for the current and several previous year's (back to 1998) can be obtained from the Florida Automated Weather System (fawn.ifas.ufl.edu) for locations near you. An 8 day forecast from the National Weather Service predicts Florida weather for several sites around the citrus belt for the next week. Find this information at:

<http://www.nws.noaa.gov/mdl/forecast/ext/state/FL.MRF.htm>. This is the easiest way to see if a warm period, which could trigger flower bud growth, is predicted. Some flower buds will be induced in the range of 300 to 450 accumulated hrs < 68 degrees F. Warm events just after these levels of induction result in weak flowering intensity, and therefore many buds remain that can be induced by later cool periods, or these buds may sprout as vegetative shoots if warm weather continues and the trees are well watered. The first situation results in multiple cohorts of flower buds developing to different bloom dates. The second condition leads to low flowering-fruit set and excessive spring vegetative growth. During the years from 1963 to 2003, multiple blooms occurred in over half of the years. Historically, the time period in which an early warm period (7-12 day) can lead to an initial low number of buds growing is roughly mid-November to mid-December. Then additional flower buds develop later resulting in multiple blooms. Presently, the only

management tool available to eliminate or reduce the chance of multiple blooms is sufficient drought stress to stop growth. This water stress may be provided by stopping irrigation well before these predicted warm periods occur. If the warm periods(s) are of the typical 7 to 10 day duration, a coincident short period of drought stress will have little impact on current crop development or quality. Sufficient drought stress may be interpreted as leaf wilt observed by 10 or 11 am, but leaves recovering by early the next morning. If no rains interrupt a drought stress condition in citrus trees, buds will not grow in response to high temperatures. If a warm period has passed, trees again can be irrigated to minimize current crop stress. Although no weather prediction is guaranteed, rains in the winter usually come on the fronts of cool periods. Sufficiently cool temperatures will prevent growth even though soil moisture is adequate for growth. Since winter rains usually occur just before cool temperatures, the chances that drought stress will prevent an early flower bud differentiation event are reasonably good for many warm periods. Even so, growers in some growing districts have often found it difficult to maintain winter drought stress.

In the shallow soils of bedded groves, it is relatively easy to create sufficient water stress to suppress growth by withholding irrigation for a few days if no rains occur. In deeper, sandy soils, 2 or more weeks without irrigation or rainfall may be required. To minimize the time required for soil to dry sufficiently to initiate water stress, the soil should be allowed to dry out by mid-November so that trees show wilt by

mid-day. For bedded groves, minimum irrigation can then be applied at low rates as needed until a weather prediction indicates a warm period is expected. At this time, irrigation should be shut down. For deep sands, the soil needs to be dried out and kept nearly dry below 6 to 8 inches of depth until at least Christmas so that no growth can occur. Minimum irrigations that re-wet perhaps the top 6 to 8 inches of the root zone may minimize excessive drought, while allowing quick return to a water stress condition if a high temperature period is forecast. Soil moisture monitoring can help to achieve these goals. Prolonged late-fall, early-winter drought may be risky for 'Hamlin' or other early maturing cultivars not yet harvested that tend to drop fruit near harvest. Much of what has been stated above has now been incorporated into a 'Flowering Expert System for Florida Citrus'.

Figure 1 represents the different aspects of flower induction as depicted by the software program. The program gives an average bloom situation represented by the shades of green to white, vegetative to heavy flowering respectively. If the current crop is very heavy, then the greener shaded bands should be broader (require more hours for the same level of flowering). If the current crop is lighter or tree condition better, then the bands should be narrower as the level of potential flowering would be greater at lower total cool temperature hours. Although this representation does not appear on the working screen, recommendations (bottom text box) do consider the current crop level in assessing when action should be taken to try to prevent or to promote initiation of the flower bud growth process. The system is available on-line and may be

accessed at:

<http://orb.at.ufl.edu/DISC/bloom>

Weekly or bi-weekly advisories will follow this preliminary one and update the reader on accumulating hours of related cool or warm temperatures and other weather effects on flower bud induction. Methods for enhancing (urea or PO₃ sprays) or reducing (GA₃ sprays) flowering intensity as conditions and cultivars dictate will be discussed in later advisories.



Current status for 2007-08 winter -

The heavier crop and general tree recovery without a hurricane should lead to average flowering next spring, unless an unusual event occurs. Although this is supposed to be a **La Nina** winter with warmer and dryer than normal weather, average cool temperature accumulation if warm periods do not interrupt the accumulation process. Currently, citrus locations have accumulated low temperatures < 68 degrees F of 45 to 150 hours from southern to northern areas, respectively. The next 8 days will be below average cool temperatures and another 140 to 168 hours should accumulate. Continued accumulation of cool temperatures and prevention of growth during a winter warm spell are important for a good start for the 2007-08 citrus production. Therefore, start to monitor irrigation amounts so drought

stress can occur if a warm period occurs between November 15 and Christmas, depending on the rate of cool temperature accumulation and reaching an acceptable level of 800 hours.

Prepare to make groves relatively dry by withholding irrigation if a warm period is predicted. Keep track of induction hours in your area and watch for the next advisory.

Current status for 2007-08 winter -

The general continued tree recovery since the 2004-05 hurricanes should be promising for good flowering next spring if cool weather accumulation is favorable. Although this is supposed to be a **La Nina** winter with warmer and dryer than normal weather, average or better cool temperature accumulation can occur if warm periods do not interrupt the accumulation process.

Through November 20th, citrus locations had accumulated low temperatures < 68 degrees F of 225 to 375 hours from southern to most northern areas, respectively. The next 8 day forecast calls for relatively cool temperatures and another 100 to 140 hours < 68 degrees F should accumulate. The most northern FAWN site has now accumulated 380 hours and by next week this total should exceed 530 hours. The warmer southern areas will have about 340 hours. These values are behind last year at this time by about 100 hours. .

Continued accumulation of cool temperatures and prevention of growth during a winter warm spell are important for a good start for the 2007-08 citrus production. After next week we could have bud growth initiated if a warm period occurred as these values will approach those needed to have buds that are easy to stimulate into growth.

Therefore, start to monitor and reduce

irrigation amounts so drought stress can occur if a warm period occurs between now and Christmas. With the better crop this year, an acceptable level of cool temperature accumulation would probably be at least 800 hours.

Maintenance of water stress during this period is an alternative to having sufficient cool temperatures for flower bud induction. The last two years field trees held under some water stress had more flowers than trees irrigated during the winter. A La Nina year favors the ability to maintain water stress as it should be dryer than normal.

At the very least, prepare to make groves relatively dry by withholding irrigation if a warm period is predicted. Keep track of induction hours in your area and watch for the next advisory. See last week's background advisory for irrigation details. There are two useful Websites to follow weather forecasts. The Florida Agricultural Weather Network (FAWN) now has an easy access function to the NOAA 4 day forecast, just type location and click. Alternative, an 8 day forecast can be viewed by going to www.crec.ifas.ufl.edu and click on resources> weather> 8-day forecast. Remember during this critical period to view FAWN, use the on-line monitor site provided in the first advisory and the NOAA 8 day forecast. Trees should be slightly stressed if a warm period is predicted (7-10 days with maximum temperatures above 85 degrees F.) in order to prevent bud growth.

If you have any questions, please contact (albrigo@ufl.edu or phone 863-956-1151).

OFFICIALS SAY SOUTH FLORIDA DROUGHT WILL WORSEN NEXT YEAR

By **BILL KACZOR**
Associated Press Writer



Top water and agriculture officials Monday said they are expecting South Florida's drought to worsen next year due to the drying effect from a cooling of Pacific Ocean waters known as a La Nina.

The South Florida Water Management District is getting ready to respond with steps that include curtailing golf course and lawn watering and cutting water allocations for crops, the agency's executive director, Carol Ann Wehle, told the House Environment & Natural Resources Council.

"This is an issue that certainly is burning in everybody's mind and probably everybody's kitchen sinks and commodes throughout Florida," said Agriculture Commissioner Charles Bronson.

He predicted growers and related businesses will lose at least \$1 billion next year.

A big part of the problem has been the drought's effect on Lake Okeechobee, which serves as a reservoir for irrigating sugar, citrus and vegetable crops and as a backup drinking water source for millions of people.

Levels in the nation's second-largest freshwater lake fell this year to a historic low. Nearby coastal areas received plenty of rainfall but little fell on the lake and watersheds flowing into it, Wehle said.

"It's like there's a force field over Lake Okeechobee," she said. "I cannot explain that."

She said South Florida has not experienced such a severe drought since the 1930s.

The water management district is drafting plans for restricting lawn watering to twice and possibly once a week and cutting golf course and agriculture allocations by 45 percent, Wehle said.

She said coastal canals also will be closed during the winter dry season to help recharge well fields tapped for drinking water.

"Instead of our canals being used for flood protection, think of them now as linear water supply reservoirs," Wehle said.

Bronson criticized her district's board for refusing in August to allow the pumping of excess summer water from agricultural areas into Lake Okeechobee. The board ended the decades old practice because the water was laden with nitrogen and phosphorous.

"There is no water including rain water that won't have some phosphorous in it when it hits Lake Okeechobee," Bronson said. "That water was much less in phosphorous than other waters that would come into the lake."

USDA REVISES REGULATIONS FOR MOVEMENT OF CITRUS FRUIT FROM FLORIDA

WASHINGTON, Nov. 16, 2007—
The U.S. Department of Agriculture's Animal Plant and Health Inspection Service (APHIS) is amending its citrus canker regulations to eliminate the pre-harvest grove inspection for all Florida citrus moving interstate. Instead, the amended regulations will require samples of each lot of citrus at the packinghouse be inspected to ensure the fruit is disease-free. This rule will be published in the Nov. 19 Federal Register.

"This regulatory change will enable Florida growers to maintain, and possibly increase, the amount of fresh citrus shipped to eligible states while providing the same level of protection against the spread of citrus canker," said Bruce Knight, under secretary for USDA's marketing and regulatory programs mission area. "To ensure Florida citrus does not ship to citrus-producing states and territories, APHIS is enhancing its enforcement efforts by conducting market surveillance and monitoring activities throughout Fiscal Year 2008."

APHIS based its decision on the findings of a pest risk analysis as well as a risk management analysis. The pest risk analysis concluded that the risk associated with the interstate movement from quarantined areas of citrus fruit that is free of citrus canker lesions is insignificant. And the risk management analysis concluded that a mandatory packinghouse inspection of

commercially packed fruit provides an effective safeguard to prevent the spread of citrus canker from quarantined areas. Additionally, APHIS encouraged the public to participate in the decision-making process by providing feedback through the submission of public comments. The public comment period on the proposed rule, issued on June 21, closed on August 7.

This final rule replaces an interim rule, published Aug. 1, 2006, that required all Florida citrus fruit destined for noncitrus-producing states to originate in groves that were inspected and found free of citrus canker no more than 30 days prior to harvest. Under the previous regulations, APHIS officials conducted packinghouse inspections as an additional safeguard to ensure that fruit shipments leaving Florida were canker-free.

Under the final rule, Florida citrus destined for noncitrus-producing states must be treated, inspected at an approved packinghouse, found free of visible citrus canker symptoms and properly packaged. To further protect citrus-producing states from any potential risk of disease, APHIS will continue to prohibit Florida citrus from being shipped to citrus-producing states and territories. Fruit shipped within Florida does not require sampling and inspection as described in the final rule. Florida citrus exported to other international markets must meet all import requirements of the destination county. For additional information about citrus canker, click on the citrus canker hot issues link at www.aphis.usda.gov.

CITRUS JUICE, VITAMIN C GIVE STAYING POWER TO GREEN TEA ANTIOXIDANTS

ScienceDaily (Nov. 14, 2007) —
**To get more out of your next cup of
tea, just add juice.**



A little juice in your hot tea may increase the amount of tea-derived antioxidants that your body is able to absorb, said Purdue associate professor of food science Mario Ferruzzi. His study found lemon juice had the most profound impact, followed by orange, lime and grapefruit juices. (Credit: Purdue Agricultural Communication photo/Tom Campbell)

A study found that citrus juices enable more of green tea's unique antioxidants to remain after simulated digestion,

making the pairing even healthier than previously thought.

The study compared the effect of various beverage additives on catechins, naturally occurring antioxidants found in tea. Results suggest that complementing green tea with either citrus juices or vitamin C likely increases the amount of catechins available for the body to absorb.

"Although these results are preliminary, I think it's encouraging that a big part of the puzzle comes down to simple chemistry," said Mario Ferruzzi, assistant professor of food science at Purdue University and the study's lead author.

Catechins (pronounced KA'-teh-kins), display health-promoting qualities and may be responsible for some of green tea's reported health benefits, like reduced risk of cancer, heart attack and stroke. The problem, Ferruzzi said, is that catechins are relatively unstable in non-acidic environments, such as the intestines, and less than 20 percent of the total remains after digestion.

"Off the bat you are eliminating a large majority of the catechins from plain green tea," Ferruzzi said. "We have to address this fact if we want to improve bodily absorption."

Ferruzzi tested juices, creamers and other additives that are either commonly added to fresh-brewed tea or used to make ready-to-drink tea products by putting them through a model simulating gastric and small-intestinal digestion. Citrus juice increased recovered catechin levels by more than five times, the study found. Ascorbic acid, or vitamin C, used to increase shelf life in ready-to-drink products, increased recovered levels of the two most abundant catechins by six fold and 13-fold, respectively.

The study, published this month in *Molecular Nutrition and Food Research*, also found that soy, dairy and rice milk appeared to have moderate stabilizing effects. But Ferruzzi said the result is misleading; a chemical interaction between milk proteins and tea catechins apparently helps shelter the complex from degradation, a force likely overcome by enzymes within a healthy human digestive system.

Lemons and tea go even better together than their popularity might suggest.

Lemon juice caused 80 percent of tea's catechins to remain, the study found.

Following lemon, in terms of stabilizing power, were orange, lime and grapefruit juices. Ferruzzi said both vitamin C and citrus juices must interact with catechins to prevent their degradation in the intestines, although data made it clear that citrus juices have stabilizing effects beyond what would be predicted solely based on their vitamin C content.

"If you want more out of your green tea, add some citrus juice to your cup after brewing or pick a ready-to-drink product formulated with ascorbic acid," Ferruzzi said.

Ready-to-drink green tea products should optimally contain 100-200 mg of catechins, but oftentimes do not have sufficient levels of tea extract since some people do not like green tea's flavor, Ferruzzi said.

Although this study only examined green tea, Ferruzzi said he suspects that some of the results also could apply to black tea, which is produced by fermenting green tea. Many prefer black tea's flavor, although it contains lower total levels of catechins.

Studies have shown catechins from the green tea plant, *Camellia sinensis*, are able to detoxify toxic chemicals, inhibit

cancer cell activity and stimulate production of immune-strengthening enzymes. Finding methods to improve uptake of these catechins may, therefore, be important in improving health, part of the study's goal, Ferruzzi said.

Ferruzzi currently is conducting an in vivo study, or study on a live organism, to quantify the ability of juices and vitamin C to increase levels of catechins in the intestines and bloodstream of animals and, by extension, in humans. He collaborates with the NIH-funded Purdue Botanicals Research Center on this project.

"This next study is designed to get us past the limitations imposed by our digestive model, which is really just a simple screening process that relies on preset physiology parameters," he said. "Human digestion is a lot more complicated."

To see if juices and vitamin C actually increase catechin absorption, researchers will have to find out if increased levels of intestinal catechins translate to higher levels of absorbed catechins in live animals and humans. They also will need to better document effects upon catechin metabolism in order to prove, for instance, that increased levels of absorbed catechins are not leveled off by metabolic factors, Ferruzzi said.

"This study tells us a lot of interesting things, but it raises many questions that have yet to be answered," he said.

The study was funded by the National Institutes of Health.

Adapted from materials provided by [Purdue University](#).



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Flatwoods Citrus



TOPICS DISCUSSED IN THE FLATWOODS CITRUS NEWSLETTER -YEAR 2007-

<u>Month</u>	<u>Topic</u>
January	current flower bud induction, fawn tools, cold protection, living with citrus canker and citrus greening, bmp development, factors affecting bloom, fruit production and quality
February	fertilizer considerations, nutrition of citrus trees, postbloom fruit drop (pfd), citrus leprosis, citrus variegated chlorosis (CVC), black spot, citrus tristeza virus- stem pitting (CTV-SP), citrus greening sampling protocol for submission of samples
March	sprayer calibration, importance of spreader calibration and maintenance, irrigation, salinity, citrus scab, fresh vs. processed fruit management decisions, effect of water pH on pest-control materials, water quality affects herbicide efficacy, pesticide recordkeeping - benefits & requirements
April	increasing efficiency and reducing cost of nutritional programs, foliar feeding, drought, now is the time to irrigate, citrus extracts get cholesterol-lowering boost
May	citrus psyllid and greening management, citrus rust mites, spider mites, the seventeenth annual farm safety day, greasy spot
June	drink your citrus juice, citrus is top juice in nutrition, southeast climate consortium summer climate outlook, microirrigation and fertigation, citrus nutrition in relation to soil alkalinity, weed control in citrus groves, iron, zinc, and manganese nutrition, lovebugs in Florida
July	citrus juices have the highest nutrient content, NOAA predicts above normal hurricane season, preparing for a hurricane, leaf and soil sampling and analyses to adjust fertilizer programs, honey bee colony collapse disorder, Florida gulf citrus growers association, gulf citrus growers association scholarship foundation, inc.
August	organic vs. gm , agri-mek, certified pile burners course, Huanglongbin (citrus greening), citrus canker, the citrus psyllid, the citrus leafminer, living with citrus canker and citrus greening, managing heat stress
September	orange juice gets the thumbs up for diabetics, citrus greening protocol for submission of samples, more on the danger of heat stress, BMP development, comments from a retiree
October	southeast climate consortium (SECC) fall climate outlook, suggested facility security practices, fertilizer formulations and applications, irrigation, nutrition and fruit quality, quick overview of the federal worker protection standard (WPS), from the Florida agricultural statistics service, why should everyone care about honey bees?
November	from the Florida agricultural statistics service, fire ants, citrus brown rot, citrus reset management, flooding injury, phytophthora foot rot and root rot, think seriously about mechanical harvesting, soil acidity and liming
December	OJ farm price forecast is good, fall/winter climate outlook, flower bud induction, officials say south Florida drought will worsen next year, citrus juice, vitamin c give staying power to green tea antioxidants, gulf citrus growers association scholarships, citrus spot burners program, cold hardiness and cold protection

COLD HARDINESS AND COLD PROTECTION

Two major environmental factors in Florida citrus that regulate cold hardiness are temperature and water.

At 55° F, citrus plant growth slows. As temperatures remain below 55° F, citrus trees will continue to acquire acclimation to these cooler temperatures. This process is reversible during warm winter periods, and de-acclimation (loss of acclimation) can occur. The greatest amount of citrus acclimation occurs during consistently cool fall and winters. Once de-acclimation occurs citrus trees will generally not re-acclimate to the same level prior to the onset of de-acclimation.

Irrigation and fall/winter rainfall can have a pronounced effect on the citrus acclimation process. Drought induced stress has been shown to increase the tolerance of citrus trees to freezing temperatures when compared to well watered or over watered citrus trees in Florida. However, excessively drought stressed trees are more susceptible to freeze damage.

Critical Temperatures for Florida Citrus

It is very important to know the critical temperature at which freezing temperatures can damage citrus. Minimum temperature indicating thermometers are a wise investment for any grower concerned with freeze/frost protection. Thermometers should be installed in the coldest grove locations. They should be placed at a height of 42 inches (4.5 ft) on a stand, sheltered at the top, and facing north. In citrus trees, there can be a great deal of variation in the minimum temperature at which plant damage will occur.

The reference temperature and duration for the initiation of the freezing process in round oranges is 28° F for four hours. Tangerines and fruit with smaller mass would receive freeze damage after shorter durations, while grapefruit would require longer durations.

Minimum temperatures of 26° F will damage fully mature, harden-off leaves that have not received any acclimation. Minimum temperatures of 30° F can significantly damage unhardened new flush leaves. Leaves that have received extensive acclimation have been shown to survive temperatures as low as 20° F in Florida.

Protecting citrus trees from cold damage

Cultural practices can have a major influence on the cold hardiness of citrus trees. A clean, hard-packed soil surface intercepts and stores more solar radiation during the day and releases more heat at night than a surface covered with vegetation or a newly tilled area. Irrigation should be applied minimally during the fall and winter. Reducing irrigation results in an increase in the cold tolerance of citrus trees and enhances tree stress resulting in an increase in the formation of flower buds. Excessive application of nutrients should be avoided late in the fall especially with young citrus trees. Heavy hedging or topping during the winter can reduce citrus cold hardiness by reducing canopy integrity that would trap heat released by the soil. This should be avoided.

Water from micro sprinkler irrigation protects young trees by transferring heat to the tree and the environment. The heat provided is from two sources, sensible heat and the latent heat of fusion. Most irrigation water comes out of the ground at 68° to 72°F, depending on the depth of the well. The major source of heat from irrigation is provided when the water in the liquid form changes to ice (latent heat of fusion).

As long as water is constantly changing to ice, the temperature of the ice-water mixture will remain at 32°F. The higher the rate of water application to a given area, the greater is the amount of heat energy that is applied. When expecting a freeze, turn on the water early before the air temperature reaches 32°F. Remember that in cold pockets, the ground surface can be colder than the air temperature reading in a thermometer shelter. Once irrigation has begun, the system must run for the duration of the time plant temperatures are below the critical temperature. Growers are recommended to use the information at the FAWN website (<http://fawn.ifas.ufl.edu>) to determine when it would be safe to turn off or on their micro-sprinkler irrigation system. For more details, go to <http://edis.ifas.ufl.edu/HS179>, <http://edis.ifas.ufl.edu/CH182>, <http://edis.ifas.ufl.edu/CH054>

In bedded groves to provide additional cold protection, water should also be pumped high in the ditches the day before and during the time of freezing weather. This water should be removed within 2-3 days after the freeze to avoid root damage.

Florida Gulf Citrus



Florida Gulf Citrus Growers are good neighbors and good stewards of the land. They are keenly aware that they must carefully balance the needs of the environment and the needs of citrus growing. This delicate balance starts in the basic design

of the groves, and then to the use of the latest technology and the most progressive management practices. All these factors enable Florida Citrus Growers to be sustainable in this region. Growers carefully manage the water resources through state-of-the-art low volume computerized irrigation systems, spraying water directly to the root zone. There are many other positive impacts that citrus groves have on the environment. Go to <http://www.gulfcitrus.org/index.html> and become a member or an associate member.

GULF CITRUS GROWERS ASSOCIATION SCHOLARSHIP FOUNDATION, INC.



Membership:

Membership in the Scholarship Foundation is open to all Gulf Citrus Growers Association (GCGA) members for just \$25 per year. Members are able to vote for and serve on the Board of Directors for the Foundation.

Donations:

Donations are a crucial source of funding for scholarship awards and may be made to the Foundation at any time during the year in any denomination, **regardless of membership status**. Checks should be made payable to the Foundation. For more details, please call the GCGA office at **863 675 2180**.

The GCGA Scholarship Foundation is a non-profit corporation operating under Section 501 © (3) of the Internal Revenue Code. Contributions are tax deductible as allowed by law.



Gulf Citrus Growers Association Scholarship Foundation, Inc.

P. O. Box 1319, LaBelle, Florida 33975 (863) 675-2180 / Fax: (863) 675-8087 / Email: gulfcitrus@earthlink.net

About the Gulf Citrus Growers Association

The citrus growers of southwest Florida are committed to supporting education as a long-term investment in the future of our industry. The first Gulf Citrus scholarship was awarded in 1992 through the Gulf Citrus Growers Association, a trade organization representing growers in Charlotte, Collier, Glades, Hendry and Lee Counties.

The Gulf Citrus Growers Association Scholarship Foundation was established in 2000 as a non-profit entity to oversee the distribution of these awards. Scholarship applications are accepted throughout the year and are reviewed semi-annually by a Scholarship Selection Committee comprised of academic and industry members. The number and amount of awards vary depending upon the number of applications received and available funds.

Applicants who are not selected may submit a new application for consideration in the next selection cycle. Previous award winners may also reapply.

Scholarship Criteria

Preferred requirements for scholarships are as follows:

Edison Community College / AA Degree:

- Completion of all placement testing.
- Completion of **12 credit hours** with continuous enrollment.
- Minimum overall grade point average of **2.5**.
- A demonstrated **commitment** to complete an AA degree.

BS, MS and PhD Degrees:

- Completion of all placement testing and a **declared major** in citrus or a citrus-related major.
- Completion of **12 credit hours** towards a citrus degree.
- Minimum overall grade point average of **2.5** for a BS degree; **3.0** for MS and PhD degrees.
- A demonstrated **commitment** to complete the degree at a state college or university.

Applicants must complete the attached application, which includes a statement of release giving the selection committee permission to verify information submitted.

*****APPLICATION DEADLINES ARE DECEMBER 31 AND JULY 31*****



Gulf Citrus Growers Association Scholarship Foundation, Inc.

P. O. Box 1319, LaBelle, Florida 33975 (863) 675-2180 / Fax: (863) 675-8087 / Email: gulfcitrus@earthlink.net

Scholarship Application

Personal Data

Name: _____ Student # or SS #: _____

Home Address: _____

City/State: _____ Zip: _____ Phone: _____

Mailing Address: _____

City/State: _____ Zip: _____ Phone: _____

E-mail: _____

Employer: _____

Address: _____

City/State: _____ Zip: _____ Phone: _____

Does your employer reimburse you for tuition or other expenses incurred toward your degree?
Yes ____ No ____

Educational Information

College or University in which you are enrolled: _____

Department / Degree Program: _____

I am working toward the following: AA ____ BS ____ MS ____ PhD ____ Other ____

Courses Taken in Major (completed):

Courses (in which you are currently enrolled):

Total Credit Hours Toward Degree: _____ Cumulative Grade Point Average (GPA): _____

Expected Date of Graduation: _____

Please answer the following questions in complete sentences with as much detail as possible.

What are your career goals? _____

What is the potential value of your education to the citrus industry *in southwest Florida*?

I authorize the release of this application and any relevant supporting information to persons involved in the selection of recipients for Gulf Citrus Growers Association scholarships.

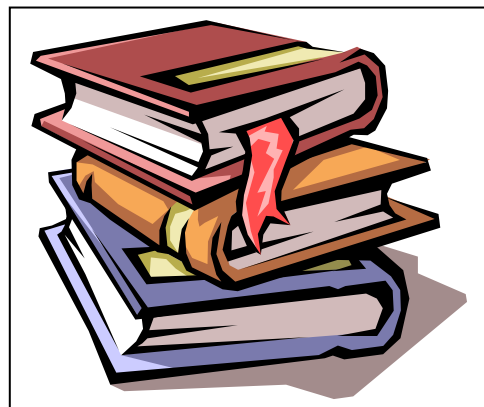
Applicant's Signature

Date

*****APPLICATION DEADLINES ARE DECEMBER 31 AND JULY 31*****

Please return this application to:

Gulf Citrus Growers Association Scholarship Foundation, Inc.
Dr. Mongi Zekri, Application Coordinator
Hendry County Extension Office
P. O. Box 68
LaBelle, FL 33975
(863) 674-4092 / Fax: (863) 674-4636
E-mail: maz@ifas.ufl.edu



Flatwoods Citrus

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If you wish to be removed from our mailing list, please check this box and complete the information requested below.

Please send: Dr. Mongi Zekri
Multi-County Citrus Agent
Hendry County Extension Office
P.O. Box 68
LaBelle, FL 33975

Subscriber's Name: _____

Company: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____

Fax: _____

E-mail: _____

Racial-Ethnic Background

__ American Indian or native Alaskan

__ Asian American

__ Hispanic

__ White, non-Hispanic

__ Black, non-Hispanic

Gender

__ Female

__ Male